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Mar 2, 1999

US-PAT-NO: 5876830

DOCUMENT-IDENTIFIER: US 5876830 A

TITLE: Method of assembly of molecular-sized nets and scaffolding

DATE-ISSUED: March 2, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
Board of Regents of The University of Colorado	Boulder	CO	N/A	N/A	02	

APPL-NO: 8/ 711448

DATE FILED: September 6, 1996

## PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS This application takes priority under 35 U.S.C. .sectn. 119(e) from U.S. provisional application serial No. 60/003,405, filed Sep. 8, 1995. This provisional application is incorporated by reference in its entirety herein.

INT-CL: [6] B32B 5/12

US-CL-ISSUED: 428/114; 156/60, 156/64, 435/6, 435/56

US-CL-CURRENT: 428/114; 156/60, 156/64, 435/6, 436/56

FIELD-OF-SEARCH: 428/114, 428/40.1, 435/6, 436/56, 156/64, 156/60

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4632800</u>	December 1986	Barruad et al.	264/298
<u>4997676</u>	March 1991	Lafebvre	427/245
<u>5402550</u>	April 1995	Michl et al.	252/299.01
<u>5468851</u>	November 1995	Seeman	536/22.1
<u>5532129</u>	July 1996	Heller	435/6

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO  
64-14290

PUBN-DATE  
January 1989

COUNTRY  
JPX

US-CL

## OTHER PUBLICATIONS

Michl, J. (1995), "The `Molecular Tinkertoy` Approach to Materials," In Proc. of the NATO ARW Meeting: Applications of Organometallic Chemistry in Preparation and Processing of Advanced Materials, Cap d'Agde, France, Sep. 1994, J. Harrod, ed., Kluwer, Dordrecht, Netherlands.

ART-UNIT: 172

PRIMARY-EXAMINER: Ahmad; Nasser

ATTY-AGENT-FIRM: Greenlee, Winner & Sullivan, P.C.

## ABSTRACT:

The present invention relates to methods and starting materials for forming molecular-sized grids or nets, or other structures based on such grids and nets, by creating molecular links between elementary molecular modules constrained to move in only two directions on an interface or surface by adhesion or bonding to that interface or surface. In the methods of this invention, monomers are employed as the building blocks of grids and more complex structures. Monomers are introduced onto and allowed to adhere or bond to an interface. The connector groups of adjacent adhered monomers are then polymerized with each other to form a regular grid in two dimensions above the interface. Modules that are not bound or adhered to the interface are removed prior to reaction of the connector groups to avoid undesired three-dimensional cross-linking and the formation of non-grid structures. Grids formed by the methods of this invention are useful in a variety of applications, including among others, for separations technology, as masks for forming regular surface structures (i.e., metal deposition) and as templates for three-dimensional molecular-sized structures.

16 Claims, 9 Drawing figures

Full	Title	CIT.1	REV.1	CLS.1	REF.1	DRAW.1
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